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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|-------------------------|---------------------|------------------|
| 09/890,026 | 01/09/2002 | Alastair Brenton Sinker | 1182-39 | 6052 |

7590 06/09/2003

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| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 1723 | 8 |

DATE MAILED: 06/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|---------------------------------------|-------------------------|
| Office Action Summary | Applicant No. | Applicant(s) |
| | 09/890,026 | SINKER ET AL. |
| | Examiner David A Reifsnyder | Art Unit 1723 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 09 January 2002.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1, 3, 4, 6/(1 and 5), 8, 12-19, 21, 23 and 24 is/are rejected.
- 7) Claim(s) 2, 5, 6/(2-4), 7, 10, 11, 20 and 22 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 24 July 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
 4) Interview Summary (PTO-413) Paper No(s) _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other:

DETAILED ACTION

Note: The applicant has attempted to cancel claim 24 and add claim 25; however there is no claim 24 because claim 23 is the last claim. No claims have been canceled and the applicant's claim 25 has been re-written as claim 24 per CFR 1.126.

Claim Objections

Claims 10, 11, 20 and 22 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiple-dependent claim. See MPEP § 608.01(n). Accordingly, claims 10, 11 and 20 not been further treated on the merits.

Note: While claims 10, 20 and 22 have not been treated on the merits a cursory review of claims 10, 20 and 22 reveal that once treated on the merits there may be some 35 USC 112 2nd paragraph problems with those claims. Claims 10/(1 and 9) and claims 20/(1 and 19) are duplicates of claims 9 and 19, respectively. The recitations in claim 10 of "the interior surface" and "the second, distal end" both lack antecedent basis. The recitation in method claim 22 of "the interior surface" lacks antecedent basis, and the entire claim does not make sense because parent claim 20 is an apparatus claim.

Specification

This specification is objected to because this application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate

sheet is required. Furthermore, the specification is further objected to because the Brief Description on page 4, line 3 of Figure 1 fails to mention that Figure 1 is a Prior Art conventional hydrocyclone.

Appropriate correction is required.

Drawings

Figure I should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

The drawings are also objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the overflow outlet being closed and the overflow outlets and underflow outlets being coupled together must be shown or the features canceled from claims 18 and 19, respectively.

No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 18 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The overflow outlet being closed as claimed in claim 18, and the overflow and underflow outlets being coupled together as claimed in claim 19 is not taught in the specification. No new matter should be entered.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6/1, 6/5, 9, 12,-14, and 21-24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 6/1 and 6/5; because claim 6 is a duplicate of claim 5 it is vague and indefinite as to what the applicant actually intends to claim in claims 6/1 and 6/5.

Regarding claim 9; the recitations of "the interior surface" and "the second, distal end" both lack antecedent basis.

Regarding claim 14; the recitation of "Apparatus according to claim 9 when the dependent from claim 5" does not make sense. Furthermore, the recitation of "extend in the inner region generally from the or each baffle" does not make sense.

Regarding claim 21; the two recitations of “the respective hydrocyclone inlets” lacks antecedent basis. Furthermore, the recitation of “a respective hydrocyclone liners” does not make sense.

Regarding claim 22; claim 22 Regarding claim 23; the two recitations of “the respective hydrocyclone inlets” lacks antecedent basis. Furthermore, the recitations of “the interior surface” and “the vessel wall” both lack antecedent basis. In addition, the recitation of “the inner region containing a mass of fibrous coalescing medium” is vague and indefinite as to whether the “mass of fibrous coalescing medium” is the same as the previously mentioned “coalescing means”. Lastly, the recitation of “whose fibres are attached at one end” is vague and indefinite as to what structure is defined by “one end”.

Regarding claim 24; because claim 24 is a duplicate of claim 2 it is vague and indefinite as to what the applicant actually intends to claim in claim 25.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8, 15-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Seureau et al.

Regarding claims 1, 8 and 15-19; Seureau et al. discloses an oil-water emulsion separator comprising a vessel containing a plurality of hydrocyclones (90) and defining an inlet chamber (82), the vessel having a fluid inlet (100), the inlet chamber being arranged to pass the oil-water emulsion to an inlet (102) of a hydrocyclone, the inlet chamber including coalescing means (64) having a substantially predetermined shape tubular sleeve (66) defining a plurality of holes for receiving a respective hydrocyclone liner (62). Furthermore, the hydrocyclone liner being removed without removing the coalescing means is simply a statement of Intended Use. Structure allowing the removal of the hydrocyclone liner without removing the coalescing means has not been claimed in claims 1, 8 and 15-19.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seureau et al.

Regarding claim 3; Seureau et al. discloses a coalescing means as discussed above but fails to disclose that the coalescing means is arranged to cause the fluid to pass through fibers of predetermined wettability as the fluid passes toward the hydrocyclone inlet. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention that Seureau et al.'s fibres be of a predetermined wettability to allow for better coalescence of the oil-water emulsion.

Regarding claim 4; Seureau et al. discloses a coalescing means as discussed above but fails to disclose that the coalescing means is arranged to cause the fluid to pass through regions in which fibre density varies in a predetermined manner as the

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fluid passes towards the hydrocyclone inlet. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention that Seureau et al's coalescing means includes regions in which fibre density varies in a predetermined manner to allow for better coalescence of the oil-water emulsion.

Allowable Subject Matter

Claims 2, 5 and 6/(2-4) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 9, 12-14 and 23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The main reason for the allowance of claims 2 and 6/2 over art is the fluid processing apparatus means as having all the limitations claimed as whole, including a coalescing means which is mechanically supported by the vessel. The prior art of record (e.g. Seureau et al.) discloses a coalescing means that is mechanically supported by a hydrocyclone liner which is in a vessel; however, Seureau et al. fails to disclose or fairly suggest the coalescing means being mechanically supported by the vessel.

The main reason for the allowance of claims 5, 6/(3-4) and 14 over art fluid processing apparatus as having all the limitations claimed as whole, including a coalescing means having a region of generally parallel fibres arranged at least in use,

to extend generally parallel to the direction of the fluid flow. The prior art of record (e.g. Seureau et al.) discloses a coalescing means including a region of generally perpendicular fibres arranged at least in used to extend generally perpendicular to the direction of fluid flow; however, Seureau et al. fails to disclose or fairly suggest that the coalescing means includes a region of generally parallel fibres arranged at least in use, to extend generally parallel to the direction of the fluid flow.

The main reason for the allowance of claims 9, 12 and 13 over art is that the prior art of record fails to describe the fluid processing apparatus comprising a vessel containing a hydrocyclone and defining an inlet chamber as having all the limitations claimed as whole and including wherein the vessel is generally elongate and the hydrocyclone includes an inlet positioned generally at a first end of the vessel, the inlet chamber containing an inlet arrangement having an inlet baffle which divides the inlet chamber into and inner region which contains the hydrocyclone and an outer region adjacent to the (i.e. a) interior surface of the vessel wall, the vessel inlet being arranged to feed fluid into the outer region and inlet baffle including at least one baffle aperture located generally at the (i.e. a) second, distal end of the vessel and arranged to permit fluid flow from the outer region to the inner region.

The main reason for the allowance of claims 23 over art is that the prior art of record fails to describe the instantly claimed method of manufacturing a fluid process apparatus having all the limitations claimed as whole comprising the step of locating an inlet arrangement in the inlet chamber, the inlet arrangement having an inlet baffle which divides the inlet chamber into an inner region which contains a plurality of

hydrocyclones and an outer region adjacent to the (i.e. a) interior surface of the vessel wall, the vessel inlet being arranged to feed fluid into the outer region and the inner region, the inner region including a mass of fibrous coalescing medium which are arranged at least in use, to extend generally parallel to the flow direction of fluid in the inner region.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A Reifsnyder whose telephone number is 1-703-308-0456. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda M Walker can be reached on 1-703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 1-703-872-9310 for regular communications and 1-703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 1-703-308-3601.

D. A. Reifsnyder
David A Reifsnyder
Primary Examiner
Art Unit 1723

DAR
June 2, 2003